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Takao Horiuchi

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EXAMINER

ZERVIGON, RUDY

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,669	Applicant(s) HORIUCHI ET AL.	
	Examiner Rudy Zervigon	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 5-8 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 5-7 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

2. Inventions 1-4,8 and 5-7 are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process. For example process pumping control for operations other than involving substrates, ie. industrial processes.

3. Restriction for examination purposes as indicated is proper because all these inventions listed in this action are independent or distinct for the reasons given above and there would be a serious search and examination burden if restriction were not required because one or more of the following reasons apply:

- (a) the inventions have acquired a separate status in the art in view of their different classification;
- (b) the inventions have acquired a separate status in the art due to their recognized divergent subject matter;
- (c) the inventions require a different field of search (for example, searching different classes/subclasses or electronic resources, or employing different search queries);

(d) the prior art applicable to one invention would not likely be applicable to another invention;

(e) the inventions are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected invention.

If claims are added after the election, applicant must indicate which of these claims are readable upon the elected invention.

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 5-7 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel; Satyadev R. et al. (US 6942811 B2) in view of Ohmi; Tadahiro et al. (US 6217633 B1). Ohmi teaches a substrate (14; Figure 2; column 4; line 37) processing system (Figure 2; column 4; lines 21-66) comprising: a gas supply source (19 or 20; Figure 2; column 3; lines 15-25) for supplying a first process gas containing a first reactive substance; a reservoir tank (12; Figure 2; column 3; lines 10-25) connected to said gas supply source (19 or 20; Figure 2; column 3; lines 15-25) for reserving the first process gas; a reactor (15; Figure 2; column 3; lines 10-25) connected to said reservoir tank (12; Figure 2; column 3; lines 10-25) for exposing a substrate (14; Figure 2; column 4; line 37) placed therein to the first process gas; a first circulation pipe (36; Figure 2; column 5; line 2) for introducing the first process gas from said reactor (15; Figure 2; column 3; lines 10-25) to said reservoir tank (12; Figure 2; column 3; lines 10-25); a second circulation

Art Unit: 1792

pipe (return at 85; Figure 2; column 5; line 2) for introducing at least part of the first process gas from said reservoir tank (12; Figure 2; column 3; lines 10-25) to said reactor (15; Figure 2; column 3; lines 10-25); and a flow regulating valve (85; Figure 2; column 3; line 20) disposed in said second circulation pipe (return at 85; Figure 2; column 5; line 2), a pressure pump (23; Figure 2; column 3; line 25) disposed between said reactor (15; Figure 2; column 3; lines 10-25) and said reservoir tank (12; Figure 2; column 3; lines 10-25), said pressure pump (23; Figure 2; column 3; line 25) being operative to generate a pressure difference between said reactor (15; Figure 2; column 3; lines 10-25) and said reservoir tank (12; Figure 2; column 3; lines 10-25) to cause the first process gas to flow from said reactor (15; Figure 2; column 3; lines 10-25) to said reservoir tank (12; Figure 2; column 3; lines 10-25); a pressure pump (23; Figure 2; column 3; line 25) upstream valve (27; Figure 2; column 3; line 25) disposed between said reactor (15; Figure 2; column 3; lines 10-25) and said pressure pump (23; Figure 2; column 3; line 25); a pressure pump (23; Figure 2; column 3; line 25) downstream valve (any of 24,25; Figure 2; column 3; line 25) disposed between said pressure pump (23; Figure 2; column 3; line 25) and said reservoir tank (12; Figure 2; column 3; lines 10-25) – claim 1. Applicant's claim requirement of "a process gas containing a reactive substance" is a claim requirement of intended use in the pending apparatus claims. Further, it has been held that claim language that simply specifies an intended use or field of use for the invention generally will not limit the scope of a claim (Walter , 618 F.2d at 769, 205 USPQ at 409; MPEP 2106). Additionally, in apparatus claims, intended use must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art

Art Unit: 1792

structure is capable of performing the intended use, then it meets the claim (In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963); MPEP 2111.02).

Patel further teaches:

- i. The substrate processing system of claim 1, wherein said pressure pump (23; Figure 2; column 3; line 25) is disposed between said reactor (15; Figure 2; column 3; lines 10-25) and said first circulation pipe (36; Figure 2; column 5; line 2) such the pressure difference causes the first process gas to flow from said reactor (15; Figure 2; column 3; lines 10-25) to said reservoir tank (12; Figure 2; column 3; lines 10-25) through said first circulation pipe (36; Figure 2; column 5; line 2), as claimed by claim 8

Patel does not teach:

- i. a turbo-molecular pump connected to said reactor (15; Figure 2; column 3; lines 10-25); a turbo-molecular pump upstream valve disposed between said reactor (15; Figure 2; column 3; lines 10-25), and said turbo-molecular pump; a dry pump disposed downstream of said turbo-molecular pump; a second gas supply source for supplying a second process gas containing a second reactive substance, which is different from the first reactive substance, to said reactor (15; Figure 2; column 3; lines 10-25); and a bypass pipe connecting said second gas supply source to said reactor (15; Figure 2; column 3; lines 10-25) such that the second process gas can be supplied to said reactor (15; Figure 2; column 3; lines 10-25) without passing through said reservoir tank (12; Figure 2; column 3; lines 10-25) - claim 1

Ohmi teaches a similar wafer processing system (Figure 1) including a turbo-molecular pump (11a), a dry pump (11b), and associated valves (column 5; lines 41-48).

Art Unit: 1792

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add Ohmi's piping elements to the apparatus of Patel.

Motivation to add Ohmi's piping elements to the apparatus of Patel is for enabling sufficient "suction force" as taught by Ohmi (column 7; lines 1-12)

Response to Arguments

6. Applicant's arguments with respect to claims 1 and 8 have been considered but are moot in view of the new grounds of rejection.

7. Applicant states:

“

In the Office Action, the Examiner asserts that vacuum pump 23 of Patel corresponds to the pressure pump of the present invention. However, as is clear from Figure 2, pump 23 of Patel is not disposed between the reactor (15) and the reservoir tank (12), as specifically required by claim 1.

“

In response, the Examiner believes applicant's argument is based on the not-to-scale drawing of Figure 2. Further, proportions of features in a drawing are not evidence of actual proportions when drawings are not to scale. Because the reference does not disclose that the drawings are to scale and is silent as to dimensions, arguments based on measurement of the drawing features are of little value. However, the description of the article pictured can be relied on, in combination with the drawings, for what they would reasonably teach one of ordinary skill in the art. (In re Wright, 193 USPQ 332 (CCPA 1977). MPEP 2125.

Applicant states:

Art Unit: 1792

“

Furthermore, pump 23 evacuates the reservoir and reactor (Fig. 2, Col. 3, lines 25-26), instead of facilitating the flow of process gas from the reactor into the reservoir. In other words, in contrast to the pressure pump of claim 1, pump 23 of Patel does not generate a pressure difference between the reactor (15) and reservoir (12) to cause the process gas to flow from the reactor to the reservoir tank.

“

The Examiner disagrees and notes that *all claimed elements* such as the reservoir and reactor are *upstream* of pump 23 thus producing the claimed flow as required.

Conclusion

8. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1792

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272-1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1792 art unit is (571) 273-8300. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

/Rudy Zervigon/

Primary Examiner, Art Unit 1792